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UNIVERSITY OF WASHINGTON
DEPARTMENT OF METEOROLOGY AND CLIMATOLOGY

SCIENTIFIC REPORT

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THE RADIATION REGIME OF DRIFTING STATION CHARLIE
FOR AUGUST - OCTOBER 1959

by
A. HANSON AND B. LIESKE

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THE RADIATION REGIME OF DRIFTING STATION CHARLIE

FOR AUGUST - OCTOBER 1959

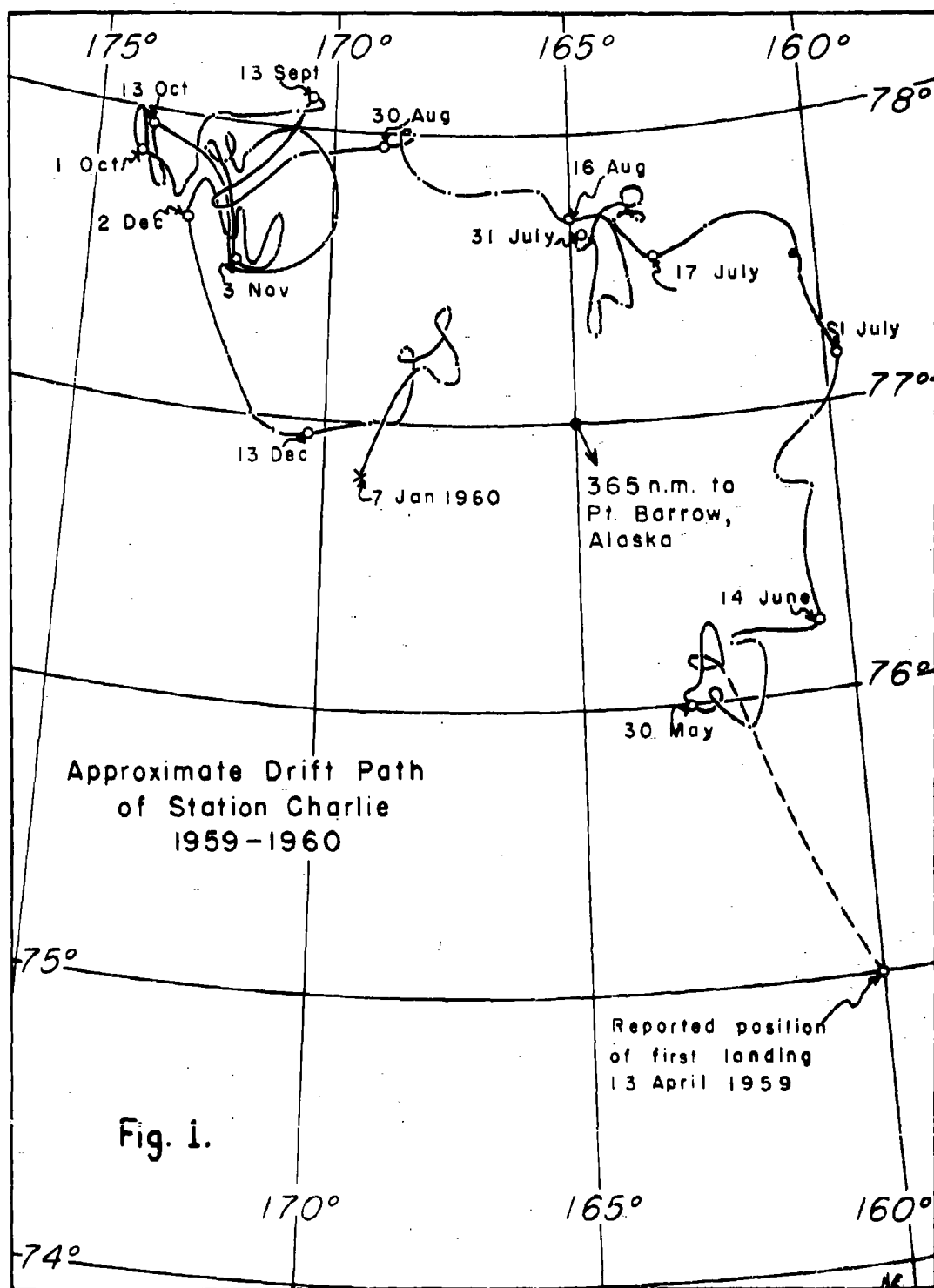
A. HANSON AND B. LIESKE

Abstract: Radiation observations that have been reduced for Drifting Station Charlie for the months of August through October 1959 are included. These data show the effect of fog, low clouds and clear sky on the radiation balance.

Drift Station Charlie was established on a large ice floe by the Office of Naval Research with United States Air Force logistical support in the spring of 1959. The position of the floe at this time and its subsequent drift are shown in Figure 1. The navigation was carried out first by A. Hanson and R. Sommerfeld who were followed by D. Hale and A. Post. The approximate size and shape of the floe at the end of summer is given in Figure 2. The area of the floe was approximately 77 square kilometres in September, 1959.

The area for micrometeorological research was selected on the probability that it would remain as free from contamination as possible. The part of this area set aside for the radiation instrument "farm" was approximately 100 meters from the main camp and about 30 meters from the micrometeorology laboratory. The laboratory building was painted white on the outside.

The radiation instruments consisted of two Kipp and Zonen hemispherical short-wave solarimeters, a Beckman and Whitley net total radiometer and an Agmet net total radiometer. The Kipp and Zonen solarimeters were used to measure the incident and reflected short-wave (visible) radiation from which the albedo may be calculated. The two net total radiometers were used alternately to measure the net total radiation. All net radiation data appended to this report were taken with the Beckman and Whitley instrument. The instruments were mounted on booms supported by tripods painted white.



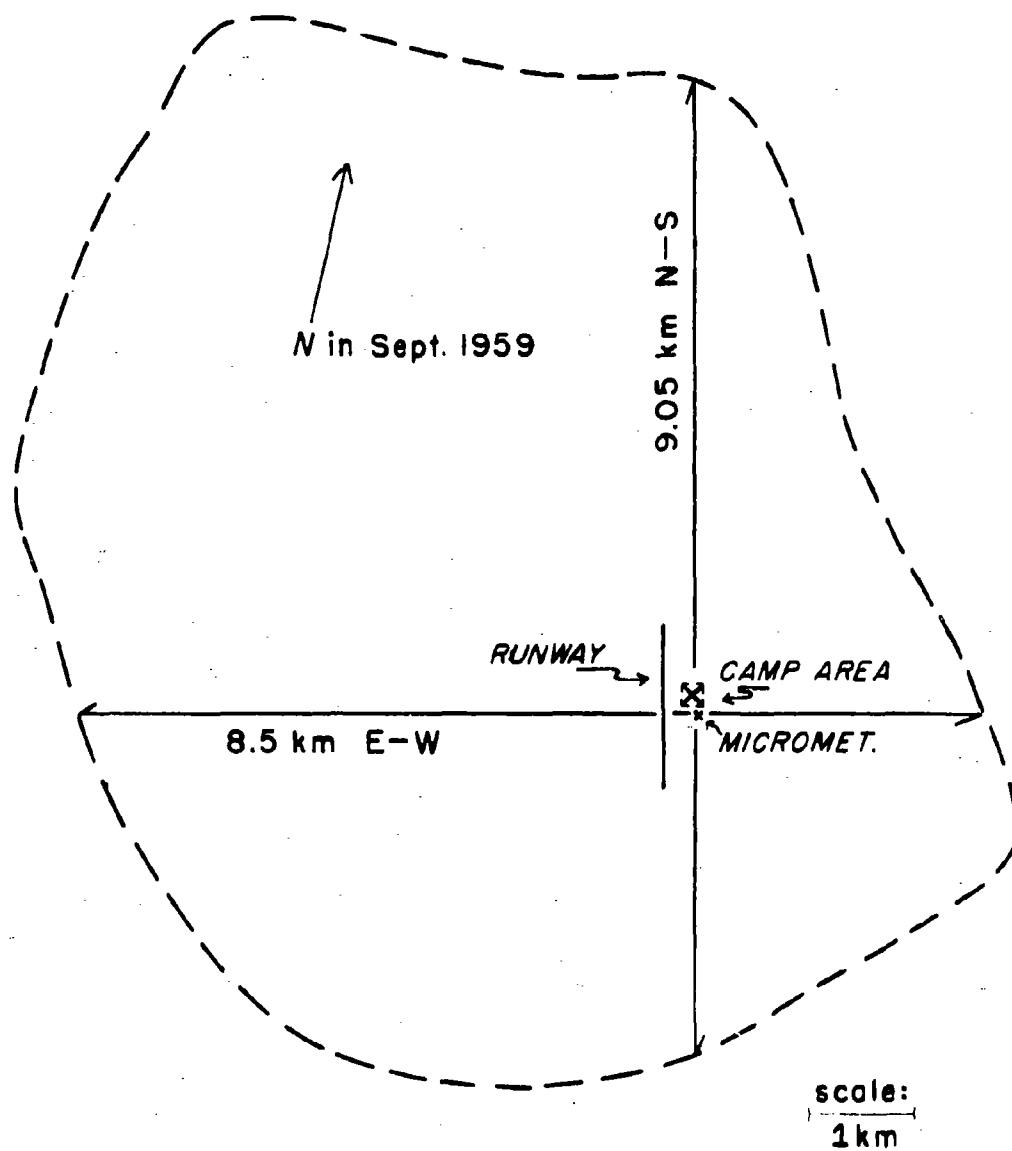


Fig. 2.
STATION ALPHA II (CHARLIE)

The mountings and locations of the instruments were such as to minimize the disturbance to the areas under study. Indeed, the only obstruction affecting the radiation instruments was the micrometeorology tower which produced a short duration shadow on sunny days, and sunny days were uncommon.

The calibrations of the net radiometers were supplied by the instrument makers. The solarimeters were calibrated as follows: Kipp and Zonen No. 1069 was compared with an Eppley pyrheliometer (owned by the Department of Meteorology and Climatology) shortly before being taken to the field and Kipp and Zonen No. 1059 was later compared in the field with No. 1069. The results of the comparison are given in Table 1.

TABLE 1

Radiometer Calibrations					
No.	Mv/gm-cal cm ⁻² min ⁻¹	Date	Solar Elevation	by	Location
1069	7.4 02	April 1959	--	M. Miyake	U. of Wash.
1059	6.9 87	14 June 1959	Approx. 23°	R. Sommerfeld	Sta. Charlie
1059	6.9 78	15 June 1959	Approx. 35°	A. Hanson	Sta. Charlie

Frosting of the glass hemispheres both inner (rare) and outer (common) hemisphere was the most common trouble with solarimeters. The frost was removed by melting with a few drops of isopropyl alcohol or heating by hand and wiping the glass dry with tissue or cheesecloth. Occasionally a solarimeter was brought into the lab and dried in a box of dessicant. The effect of frost on the glass hemisphere depends on the amount and location with respect to the sun's direction; frost can also act as a reflector, thus either adding to or subtracting from the flux which reaches the thermopile. The solarimeter facing up (global) was much more subject to frost deposition. Frost was a problem with the net radiometers only in so far as the ventilating system was inhibited by frost deposits. A more common trouble was a strong cross-wind over the thermopile, because a change of ventilation such as this could result in a change of the calibration constant. The net radiometers were kept facing nearly downwind as much of the time as possible.

The outputs of the various instruments were recorded on a Weston dual range, multipoint, strip chart, recording potentiometer. Several difficulties were encountered with the recorder which, together with frost and drizzle on the sensors, resulted in the necessity of discarding some data.

PRELIMINARY DATA ANALYSIS

The data are presented in milliwatts cm^{-2} units for ease of computation in dealing with heat budget problems. Because data were reduced from the charts to the nearest $0.01 \text{ cal cm}^{-2} \text{ min}^{-1}$, it will be noted that the values of radiation change by 0.7 milliwatt. Table 2 gives conversion factors.

TABLE 2

Conversion Factors

$$\begin{aligned} 1 \text{ JOULE CM}^{-2} &= 0.239 \text{ CAL CM}^{-2} \\ 1 \text{ JOULE CM}^{-2} \text{ SEC}^{-1} &= 1 \text{ WATT CM}^{-2} \\ 1 \text{ MILLIWATT CM}^{-2} &= 0.0143 \text{ CAL CM}^{-2} \text{ MIN}^{-1} \\ 1 \text{ ERG SEC}^{-1} &= 10^{-7} \text{ WATT} \end{aligned}$$

During the three month period covered in this report Station Charlie was located between longitudes 164°W and 174°W , and local apparent noon was approximately between 2300 and 2325 GMT. The local apparent time can be determined by use of Figure 1 which shows approximate positions. Three-hourly USWB observations of temperature (150 cm above snow), total sky cover, and weather are presented with the radiation data. Table 3 gives the meaning of weather symbols. The data are summarized for each month at the end of the report.

TABLE 3

Weather Symbols

R	rain	S	snow
R-	light rain	S-	light snow
R--	very light rain	S--	very light snow
F	fog	SW	snow showers
L	drizzle	SW-	light snow showers
L-	light drizzle	SW--	very light snow showers
L--	very light drizzle	BS	blowing snow
ZL-	light freezing drizzle	IC	ice crystals
ZR-	light freezing rain	E--	very light sleet

Figures 3 and 4 show mean hourly global short wave and net total radiation for each month. The sun disappeared for the winter about October 26, hence the hourly averages for October (Figure 4) apply to the sunlight period only.

One phenomenon which is brought out clearly by the data is the importance of the cloud cover to the radiation balance during the summer and early autumn. Averages of net radiation for the hours ending at 0000, 0300, 0600, 0900, 1200, 1500, 1800 and 2100Z were computed for the period August 10 to September 10 for three classes of weather and cloudiness. The results are given in Table 4 and show that summer cloud cover causes the radiation balance to be positive.

TABLE 4

Mean Net Radiation in MW Cm⁻²
August 10 - September 10, 1959

fog with cloudiness $\geq 5/10$	cloudiness $< 5/10$	precipitation with or without fog
2.0	-1.6	2.2

STATION CHARLIE MEAN HOURLY RADIATION 10-31 AUG., 1959

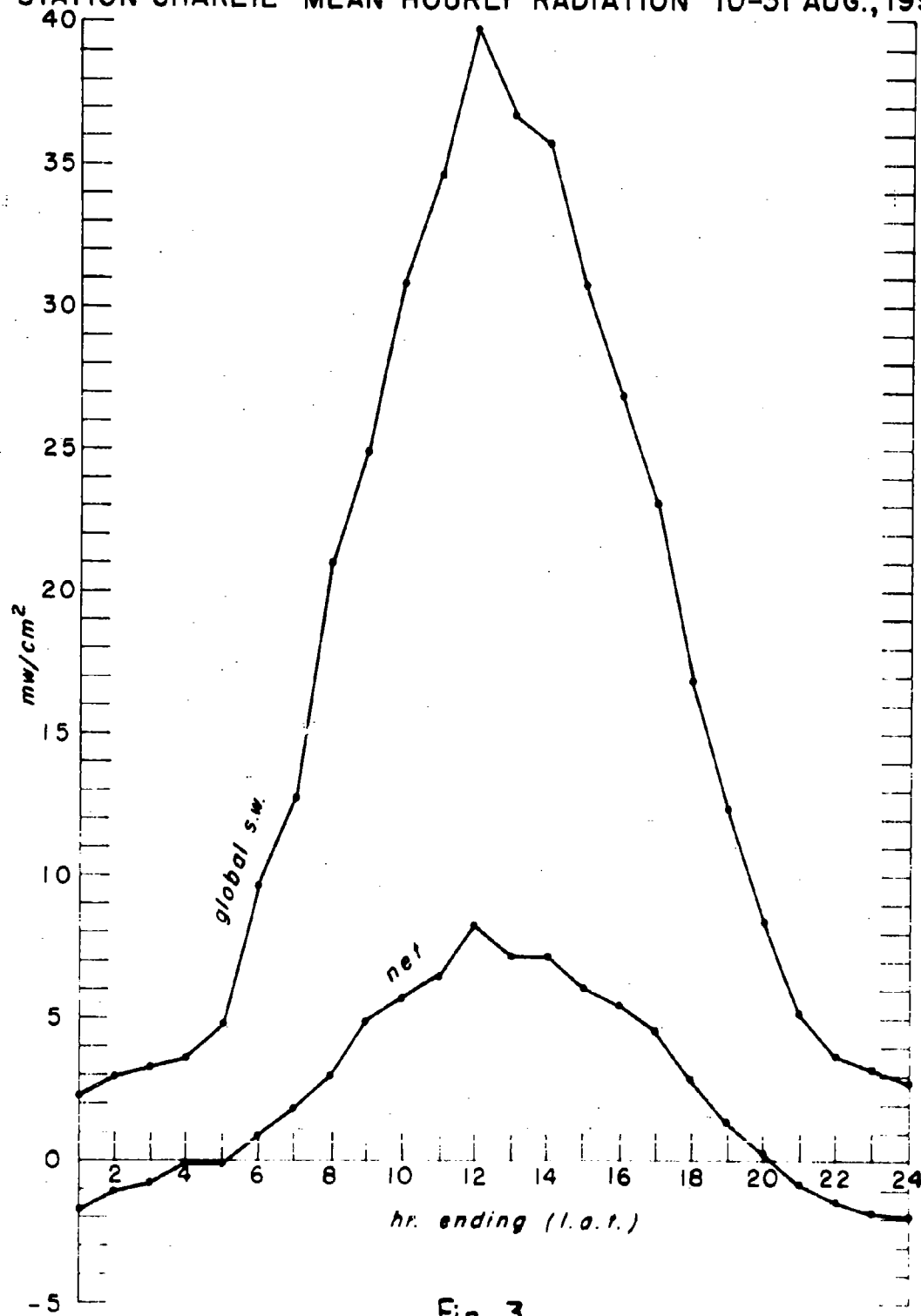


Fig. 3.

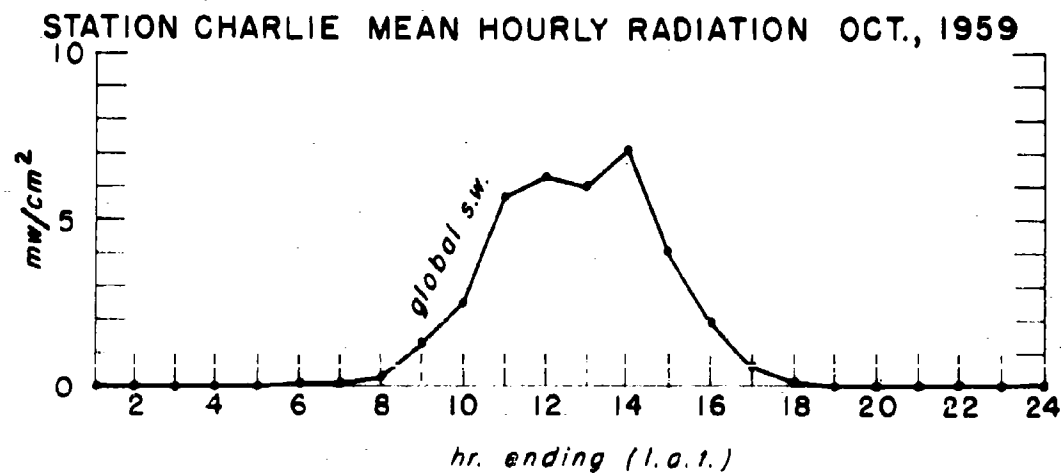
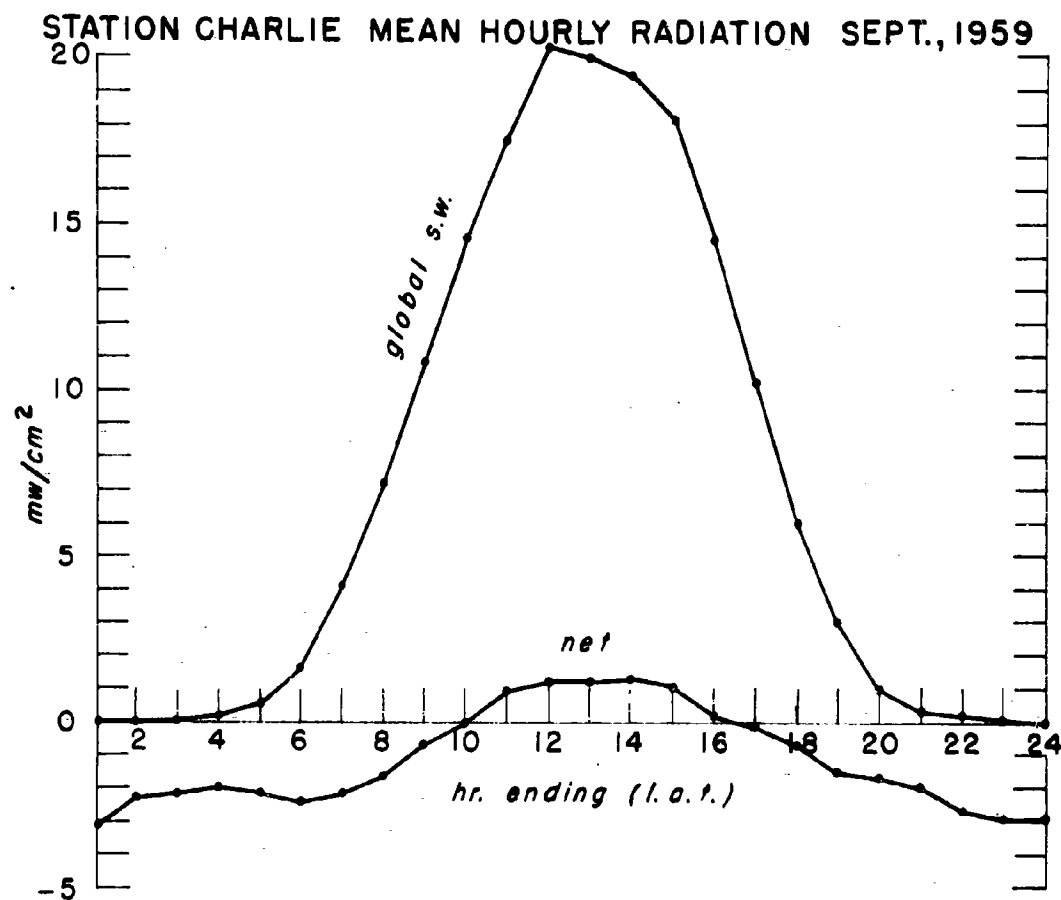


Fig. 4

An extreme example of this effect is shown on August 15 which was an extraordinary day with pressure reaching 1030.5 millibars and the sky almost completely clear. For the day an estimated 2306 joules (552 calories) of short wave radiation were incident per cm^2 . Perhaps 60-65% of this sum was reflected. Clear skies permitted a greater net long wave radiative loss and the net radiation for the day was $-68 \text{ joules}/\text{cm}^2$ (-16 langley s).

Nine years of radiation data from USSR stations NP-4, NP-5, NP-6, and NP-7 show that in all years the monthly net radiation balance was positive for the months May-August.¹ The August 15 case serves to point out the importance of cloudiness in establishing this positive net radiation balance.

The authors are indebted to the patient work of the data technicians of Station Husky for their work in data reduction, and to Dr. Joost A. Businger for his counsel and encouragement.

¹ Andreeva, N. N., and Piatonkov, B. A., Certain Characteristics of the Radiation Balance in the Central Arctic, Problemy Arktiki, No. 7: 79-89, 1959 (USAF GRD translation)

Table 5 lists the number of hours of data for global short wave (G) reflected short wave (R), and net (N) radiation. The table should be used in conjunction with the monthly summaries since the summaries include only the measured data, and no estimates of radiation for missing hours have been included. The asterisk which appears on the monthly summaries denotes that sums are incomplete.

TABLE 5

Number of Hours Data

Hour Ending (GMT)	Hourly																		
	August			Sept.			Oct.			Day	August			Sept.			Oct.		
	G	R	N	G	R	N	G	R	N		G	R	N	G	R	N	G	R	N
1	20	21	21	27	27	28	21	21	3	1	0	0	0	18	14	17	20	24	24
2	20	21	21	28	27	28	21	21	3	2	0	0	0	24	23	24	24	24	24
3	21	21	21	28	27	28	21	21	3	3	0	0	0	24	24	24	24	24	19
4	21	21	21	29	29	29	20	20	3	4	0	0	0	24	24	24	23	23	0
5	21	21	21	30	29	30	19	20	3	5	0	0	0	23	23	24	24	24	0
6	20	20	20	29	29	30	19	19	3	6	0	0	0	18	19	24	24	24	0
7	20	20	19	28	28	30	19	19	3	7	0	0	0	20	19	24	21	24	0
8	19	19	20	26	27	30	20	20	3	8	0	0	0	21	24	24	22	24	0
9	20	19	20	26	26	29	20	20	3	9	0	0	0	22	22	24	24	24	0
10	20	19	20	28	28	29	20	20	3	10	21	24	24	21	20	24	24	24	0
11	19	18	19	28	26	29	20	20	3	11	20	9	21	22	23	23	24	24	0
12	19	18	19	30	30	29	20	20	3	12	24	24	21	24	24	24	24	24	0
13	19	18	19	29	29	30	20	20	3	13	24	24	24	24	24	24	3	3	0
14	18	18	19	27	27	30	20	20	3	14	18	23	23	24	24	24	0	0	0
15	14	16	19	26	25	30	20	20	3	15	20	20	24	21	16	24	24	24	0
16	13	15	18	24	23	30	20	20	3	16	20	24	24	23	23	23	24	22	0
17	11	15	17	22	23	30	20	20	3	17	22	24	22	22	22	24	24	24	0
18	12	15	18	19	19	30	19	20	3	18	18	18	24	24	24	24	24	24	0
19	15	15	18	15	18	28	18	20	3	19	19	24	24	21	21	24	24	24	0
20	19	17	21	25	24	28	18	20	2	20	24	18	24	18	18	19	24	24	0
21	21	20	22	27	27	28	18	20	2	21	14	14	13	14	14	21	19	24	0
22	21	21	22	27	27	27	18	20	2	22	24	24	24	21	21	24	24	24	0
23	19	19	20	28	28	29	18	20	2	23	24	24	24	15	18	24	0	0	0
24	21	21	22	28	28	29	19	19	2	24	21	24	24	23	24	24	0	0	0
										25	6	6	11	20	20	24	0	0	0
										26	5	5	7	22	22	23			
										27	24	24	24	17	16	20	SUNSET		
										28	24	24	24	23	24	24			
										29	24	24	24	23	23	24			
										30	24	24	24	18	18	24			
										31	23	23	23						

per cent complete 60 60 64 88 88 97 78 80 11

MILLIWATTS/CM²

Hour Ending
at (GMT)

1 2 3 4 5 6 7 8 9 10 11 12

Weather

0.1

8

10

10

4

Hour Ending
at (GMT)

13 14 15 16 17 18 19 20 21 22 23 24

Weather

1.8

3

2.

8

9

Hour Ending
at (GMT):

1 2 3 4 5 6 7 8 9 10 11 12

Weather

1.3

6

4

8

8

Hour Ending
at (GMT)

13 14 15 16 17 18 19 20 21 22 23 24

Weather

1.3

9

9

10

10

STATION CHARLEY RELATION

AUGUST 3

[illegible][illegible]

AUGUST 4

[illegible][illegible]

STATION CHARLEY RADIATION

AUGUST 5

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW												
Reflected SW												
Net Radiation												
Temp °C			-0.3			-0.9			-1.9			-2.7
Tenths Cloudiness			8			8			8			8
Weather			F			F			F			F

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW												
Reflected SW												
Net Radiation												
Temp °C			-2.6			-1.6			-0.7			0.1
Tenths Cloudiness			10			10			10			10
Weather			F			F			F			F

AUGUST 6

Hour Ending at (G.M.T)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW												
Reflected SW												
Net Radiation												
Temp °C			0.3			0.5			0.2			0.2
Tenths Cloudiness			10			10			10			10
Weather			F			F						

[illegible]

STATION CHARLEY RADIATION

AUGUST 7

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW												
Reflected SW												
Net Radiation												
Temp °C		0.6			0.5			0.3				0.1
Tenths Cloudiness		10			10			10				10
Weather		R--F			R--F			R--F				L--F

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW												
Reflected SW												
Net Radiation												
Temp °C			0.4			0.6			0.7			1.1
Tenths Cloudiness			10			10			10			10
Weather			L—F			F			F			

AUGUST 8

Hour ending at (G.T)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW												
Reflected SW												
Net Radiation												
Temp °C			1.4			0.8			0.5			-1.0
Tenths Cloudiness			10			10			8			3
Weather						L						

[illegible]

STATION CHARLEY RADIATION

AUGUST 9

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW												
Reflected SW												
Net Radiation												
Temp °C			1.2			0.7			0.2			-1.2
Tenths Cloudiness			10			10			10			4
Weather			F			F			F			F

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW												
Reflected SW												
Net Radiation												
Temp °C			-1.2			-1.1			-1.2			-1.0
Tenths Cloudiness			2			8			8			8
Weather			F			F			F			F

AUGUST 10

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	59.7	39.8	23.7	32.1	17.4	18.1	20.9	14.7	9.1	10.5	6.3	6.3
Reflected SW	34.9	27.9	14.7	23.0	10.4	11.2	11.2	7.0	6.3	6.3	6.3	6.3
Net Radiation	14.0	9.8	5.6	9.1	0.7	2.1	2.8	0	-1.4	0.7	0	-0.7
Temp °C			-1.1			-1.2			-1.2			-1.6
Tenths Cloudiness			8			7			8			10
Weather			F			F			F			F

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	7.0	6.3	7.0	9.8	-	-	-	26.5	34.9	37.7	48.1	39.1
Reflected SW	6.3	6.3	6.3	6.3	9.1	11.2	14.7	18.1	21.6	25.1	29.3	25.1
Net Radiation	-0.7	-0.7	-0.7	0	1.4	2.1	3.9	5.6	6.3	8.4	15.3	12.6
Temp °C			-1.6			-1.1			-0.3			0.4
Tenths Cloudiness			9			10			8			10
Weather			F			F			F			F

STATION CHARLEY IRRADIATION

AUGUST 11

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	27.2	30.7	29.3	24.2	21.6	17.4	9.8	-	6.3	6.3	6.3	6.3
Reflected SW	18.8	18.8	18.1	16.8	14.7	10.5	7.1	-	-	-	-	-
Net Radiation	9.1	9.1	9.1	7.0	4.9	2.8	0.7	0.7	0	0	0	-0.7
Temp. °C			0.7			0.1			-0.1			-0.1
Tenths Cloudiness			10			10			10			10
Weather			F			F						L--F

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	6.3	6.3	6.3	-	-	12.6	15.3	20.2	24.4	26.5	-	25.1
Reflected SW	-	-	-	-	-	-	-	-	-	16.7	-	16.0
Net Radiation	-1.4	0	0.7	-	-	5.6	7.0	7.0	7.7	8.4	-	7.7
Temp. °C			-0.1			0.4			0.5			0.6
Tenths Cloudiness			10			10			10			10
Weather			L--F			F			F			

AUGUST 12

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	27.2	26.5	24.4	15.3	15.3	10.5	5.6	5.6	5.6	5.6	5.6	5.6
Reflected SW	18.1	18.1	15.3	10.5	10.5	6.3	5.6	5.6	5.6	5.6	5.6	5.6
Net Radiation	8.4	8.4	7.7	5.6	4.9	0.7	0.7	0.7	0	0.7	0.7	7.7
Temp. °C			0.5			-0.4			-0.6			-0.1
Tenths Cloudiness			10			10			10			10
Weather												2K-
Hour Ending (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	5.6	5.6	5.6	5.6	8.4	11.9	17.4	22.3	32.8	36.2	40.5	40.5
Reflected SW	5.6	5.6	5.6	5.6	5.6	8.4	11.9	16.0	21.0	22.3	26.5	26.5
Net Radiation	7.7	7.7	7.7	6.3	-	-	-	7.7	11.9	12.6	14.7	15.3
Temp. °C			0.0			0.3			0.5			1.1
Tenths Cloudiness			10			10			10			10
Weather			2R-			L--			F			F

STATION CHARLEY RADIATION

AUGUST 13

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	36.3	35.6	29.3	22.3	16.7	10.5	6.3	5.6	5.6	5.6	6.3	6.3
Reflected SW	23.7	23.7	18.8	10.5	7.7	5.6	5.6	5.6	5.6	6.3	6.3	6.3
Net Radiation	14.0	14.6	11.9	9.1	7.0	4.1	2.1	1.4	0.7	0	0.7	0
Temp °C			0.7			0.3			0.2			0.3
Tenths Cloudiness			10			10			10			10
Weather			F			F			L-F			L-F

Hour Ending at GMT	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	6.3	6.3	6.3	7.7	11.9	16.0	20.2	23.7	23.7	32.1	30.7	27.2
Reflected SW	6.3	6.3	6.3	6.3	8.4	10.5	12.6	15.3	16.0	20.2	18.8	17.4
Net Radiation	0.7	0.7	0.7	2.1	4.9	7.0	7.7	9.1	10.5	12.6	11.9	9.1
Temp °C			0.3			0.4			0.5			0.6
Tenths Cloudiness			10			10			10			10
Weather			F			F			F			F

AUGUST 14

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	21.6	14.7	30.0	30.7	11.9	-	9.1	5.6	6.3	6.3	6.3	6.3
Reflected SW	15.3	10.5	13.2	9.8	9.1	-	7.0	5.6	6.3	6.3	6.3	6.3
Net Radiation	5.6	1.4	4.9	7.0	5.6	-	0.7	0	-0.7	-2.8	-7.0	-7.7
Temp °C			0.6			0.1			-1.2			-2.1
Tenths Cloudiness			10			10			10			4
Weather			L--F						F			

[illegible]

STATION CHARLEY RADIATION

AUGUST 15

[illegible][illegible]

AUGUST 16

[illegible][illegible]

STATION CHARLEY RADIATION

AUGUST 17

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	-	-	18.8	19.5	15.3	11.9	8.4	5.6	4.2	4.2	3.5	2.1
Reflected SW	14.0	13.3	11.2	8.4	6.3	5.6	5.6	5.6	4.2	4.2	3.5	2.1
Net Radiation	-	-	7.0	7.0	5.6	2.8	0.7	-0.7	-0.7	-0.7	0	-1.4
Temp °C			-1.0			-1.1			-1.4			-2.1
Tenths Cloudiness			10			10			10			10
Weather						L--F			F			F

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	3.5	6.3	4.2	5.6	7.7	9.8	11.9	15.3	33.8	37.0	39.8	35.6
Reflected SW	3.5	4.2	4.2	5.6	7.0	7.7	10.5	13.3	25.8	26.5	27.9	25.1
Net Radiation	0	0	1.4	2.8	2.8	3.5	3.5	4.9	7.0	9.8	17.4	11.2
Temp °C			-1.8			-1.7			-1.7			-1.2
Tenths Cloudiness			10			10			10			10
Weather			F			SW-F			F			ZL--F

AUGUST 18

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	35.6	33.5	31.4	27.9	23.0	16.0	10.5	6.3	4.2	3.5	2.8	2.1
Reflected SW	26.5	24.4	21.6	18.8	15.3	10.5	7.7	5.6	4.2	3.5	2.8	2.1
Net Radiation	11.9	8.4	7.0	4.9	3.5	0.7	-0.7	-2.1	-3.5	-4.9	-4.9	-4.9
Temp °C			-1.3			-2.1			-3.1			-3.8
Tenths Cloudiness			8			8			8			10
Weather			F			F			F			F

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	2.8	3.5	-	-	-	-	-	-	33.5	37.7	39.8	38.4
Reflected SW	2.8	3.5	-	-	-	-	-	-	24.4	27.2	29.3	30.0
Net Radiation	-4.9	-4.2	-1.4	-1.4	0	0.7	2.1	7.0	7.7	8.4	9.1	9.1
Temp °C			-3.8			-3.9			-3.8			-3.0
Tenths Cloudiness			8			8			10			10
Weather			F			F			F			F

STATION CHARLEY RADIATION

AUGUST 19

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	38.4	33.5	31.4	26.5	21.6	15.3	7.7	5.6	4.2	3.5	2.8	1.4
Reflected SW	27.9	31.4	22.3	18.8	15.4	11.2	6.3	5.6	4.2	3.5	2.8	1.4
Net Radiation	8.4	7.7	7.7	7.0	4.9	2.1	-1.4	-2.1	-2.8	-4.9	-5.6	-5.6
Temp °C			-2.4			-2.9			-3.8			-3.9
Tenths Cloudiness			9			10			10			8
Weather			F			F			F			F

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	2.8	3.5	-	-	-	-	-	28.6	38.4	35.6	43.3	42.6
Reflected SW	2.8	3.5	4.9	11.9	14.0	18.1	19.5	24.4	30.0	27.2	32.8	32.8
Net Radiation	-3.5	-3.5	-2.8	-7.0	-2.8	0	1.4	5.6	6.3	5.6	8.4	7.0
Temp °C			-4.2			-4.8			-4.0			-2.7
Tenths Cloudiness			8			8			8			9
Weather			F			F			F			F

AUGUST 20

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	42.6	38.4	34.2	28.6	20.2	16.7	9.8	6.3	3.5	2.8	2.1	1.4
Reflected SW	32.8	29.3	26.5	20.9	15.3	11.2	7.7	5.6	3.5	2.8	2.1	1.4
Net Radiation	6.3	6.3	4.9	2.8	0.7	-0.7	0	-2.8	-6.3	-6.3	-5.6	-2.1
Temp °C			-3.3			-4.0			-5.1			-5.1
Tenths Cloudiness			9			9			7			10
Weather			F			F			F			F

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	2.1	2.8	4.2	48.8	13.3	13.3	23.7	31.4	34.2	39.8	38.4	39.8
Reflected SW	2.8	3.5	-	-	-	-	-	-	24.4	27.2	29.3	30.0
Net Radiation	-2.1	-1.4	-6.7	0	2.8	2.1	3.5	0.7	4.9	3.5	8.4	7.7
Temp °C			-5.3			-4.6			-4.0			-3.1
Tenths Cloudiness			10			10			9			10
Weather			F			F			F			F

STATION CUMLEY RADIATION

AUGUST 21

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	36.3	29.3	25.8	21.6	19.5	10.5	15.4	5.6	3.5	2.8	-	-
Reflected SW	27.9	24.4	20.9	18.1	14.7	9.1	7.0	5.6	3.5	2.8	-	-
Net Radiation	7.7	5.3	4.9	4.9	2.8	0.7	-	-0.7	-0.7	-1.4	-	-
Temp °C			-4.4			-4.9			-4.5			-5.4
Tenths Cloudiness			10			10			10			10
Weather			F			F			F			
Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	-	-	-	-	-	-	-	-	28.6	28.6	29.3	26.5
Reflected SW	-	-	-	-	-	-	-	-	23.7	23.7	23.0	21.6
Net Radiation	-	-	-	-	-	-	-	-	4.2	4.9	4.9	4.2
Temp °C			-4.2			-3.1			-4.7			-4.4
Tenths Cloudiness			10			10			10			10
Weather												SW--

AUGUST 22

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	26.5	22.3	18.8	19.5	14.0	7.7	7.7	3.8	3.5	2.1	1.4	0.7
Reflected SW	21.6	18.8	16.0	16.0	11.2	7.7	7.0	4.8	3.5	2.1	1.4	0.7
Net Radiation	4.2	3.5	2.1	3.5	2.1	1.4	0.7	0	0	0	0	-0.7
Temp °C			-3.9			-4.0			-4.0			-4.7
Tenths Cloudiness			10			10			10			10
Weather			S--			S--			--			--
Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	1.4	2.8	3.8	4.9	7.7	13.3	18.8	28.6	29.3	37.0	35.6	30.7
Reflected SW	1.4	2.8	4.2	4.9	7.7	11.9	16.7	22.3	23.7	30.0	28.7	24.4
Net Radiation	0	0	0	0.7	0.7	2.1	4.2	4.2	4.9	7.0	9.1	8.5
Temp °C			-4.8			-3.9			-3.4			-1.0
Tenths Cloudiness			10			10			9			10
Weather						S--F			F			F

STATION CHADLEY RADIATION

AUGUST 23

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	32.8	33.5	24.4	20.9	12.6	6.3	5.6	4.2	3.5	2.1	1.4	0
Reflected SW	26.5	26.5	20.2	16.7	12.6	12.6	5.6	4.2	2.8	2.1	1.4	0
Net Radiation	7.0	7.0	3.5	4.2	2.8	1.4	0.7	0.7	0	0	0	0
Temp °C			-1.8			-1.7			-1.3			-0.6
Tenths Cloudiness			9			10			10			10
Weather			F			F						F

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	1.4	3.5	4.2	7.7	16.7	13.3	20.2	21.6	20.2	28.6	44.7	40.5
Reflected SW	1.4	2.8	4.2	7.7	14.0	11.2	18.1	18.8	18.1	23.7	35.6	39.8
Net Radiation	0	0.7	1.4	1.4	3.5	1.4	3.5	4.2	4.2	5.6	7.7	2.8
Temp °C			-0.6			-0.1			-0.1			-0.5
Tenths Cloudiness			10			10			9			?
Weather												

AUGUST 24

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	46.8	43.3	35.6	32.8	20.2	25.1	5.6	4.2	2.5	1.4	0.7	0
Reflected SW	37.0	34.2	27.2	23.7	15.3	15.3	5.6	14.0	11.2	1.4	0.7	0
Net Radiation	12.6	1.4	0	0.7	0.7	0.7	-0.7	0	-2.1	-2.8	-2.1	-1.4
Temp °C			-1.9			-3.9			-6.0			-6.6
Tenths Cloudiness			3			10			10			10
Weather						S--F			F			F

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	1.4	2.8	4.2	5.6	-	-	-	24.4	34.2	36.3	38.4	32.8
Reflected SW	1.4	2.8	4.2	5.6	5.6	5.6	5.6	22.3	30.0	30.0	32.1	26.5
Net Radiation	-7.0	-0.7	0	-0.7	1.4	3.5	4.2	4.9	5.6	5.9	8.4	7.7
Temp °C			-7.2			-6.7			-4.7			-3.1
Tenths Cloudiness			10			10			8			10
Weather			S--F			S--F			F			S--F

STATION CHARLEY RADIATION

AUGUST 25

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	30.7	20.2	18.8	16.7	9.8	6.3	-	-	-	-	-	-
Reflected SW	25.1	22.3	16.0	11.2	8.4	6.3	-	-	-	-	-	-
Net Radiation	7.7	7.7	4.9	2.1	0.7	0.7	-	-	-	-	-	-
Temp °C			-0.9			-0.8			-1.1			-1.3
Tenths Cloudiness			10			10			10			9
Weather												

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	-	-	-	-	-	-	-	-	-	-	-	-
Reflected SW	-	-	-	-	-	-	-	-	-	-	-	-
Net Radiation	-	-	-	-	-	-	-	0.7	0.7	0	0.7	4.9
Temp °C			-1.2			-2.7			-1.9			-0.8
Tenths Cloudiness			8			7			5			8
Weather												

AUGUST 26

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	-	-	-	-	-	-	-	-	-	-	-	-
Reflected SW	-	-	-	-	-	-	-	-	-	-	-	-
Net Radiation	0	0.7	-	-	-	-	-	-	-	-	-	-
Temp °C			-1.2			-1.2			-0.8			-0.8
Tenths Cloudiness			8			10			10			10
Weather									F			

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	-	-	-	-	-	-	-	9.8	18.8	23.0	30.7	34.9
Reflected SW	-	-	-	-	-	-	-	8.4	14.0	18.8	15.3	29.3
Net Radiation	-	-	-	-	-	-	-	2.8	3.5	4.9	7.7	3.5
Temp °C			-0.9			-1.0			-0.7			-3.7
Tenths Cloudiness			10			10			10			9
Weather			F			L-F			F			SW-F

STATION CHARLEY RADIATION

AUGUST 27

[illegible]

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	0	0.7	0.7	3.5	11.9	11.9	20.9	32.8	48.1	55.1	60.7	60.7
Reflected SW	0	0.7	0.7	2.8	8.4	9.8	15.4	25.1	31.4	34.2	37.0	37.0
Net Radiation	-0.7	-0.7	-0.7	-0.7	-2.8	-0.7	-1.4	-5.6	-7.0	-5.6	-3.5	-2.1
Temp °C			-3.7			-5.8			-5.8			-4.6
Tenths Cloudiness			10			10			3			1
Weather			SW—			SW—F						

AUGUST 20

[illegible][illegible]

STATION CHARLEY RADIATION

AUGUST 29

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	21.6	18.8	18.8	13.3	9.8	4.2	4.2	0.7	0	0	0	0
Reflected SW	20.9	18.8	18.8	12.6	9.1	3.5	2.1	0.7	0	0	0	0
Net Radiation	5.6	3.5	5.6	2.1	2.1	1.4	0.7	0	0	0	0	0
Temp °C			-1.2			-2.9			-2.3			-2.1
Tenths Cloudiness			10			10			10			10
Weather						SW—						

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	0	0	0.7	2.1	4.9	7.0	11.9	18.1	18.8	18.8	16.1	16.7
Reflected SW	0	0	0.7	2.1	3.5	5.6	9.8	14.0	14.7	14.7	16.1	16.1
Net Radiation	0	0	0.7	0	0.7	0.7	2.1	6.3	3.5	3.5	4.9	4.9
Temp °C			-2.2			-1.7			-1.3			-1.1
Tenths Cloudiness			10			10			10			10
Weather						SW—			SW—			SW—

AUGUST 30

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	16.7	18.1	19.5	15.4	13.3	8.4	2.8	2.8	0.7	0	0	0
Reflected SW	14.0	14.7	16.7	13.3	11.9	7.7	2.8	2.8	0.7	0	0	0
Net Radiation	3.5	3.5	4.9	3.5	2.8	1.4	0	0	0	0	0	0
Temp °C			-1.1			-1.5			-1.9			-2.2
Tenths Cloudiness			10			10			10			10
Weather						S—						F

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	0	0	0.7	0.7	2.8	9.8	8.4	13.3	18.8	22.3	27.2	18.8
Reflected SW	0	0	0.7	0.7	2.8	7.7	7.7	11.9	16.1	18.8	20.2	16.7
Net Radiation	-0.7	-0.7	0	0.7	0.7	1.4	1.4	1.4	2.8	4.9	5.6	3.5
Temp °C			-2.7			-1.7			-1.7			-1.6
Tenths Cloudiness			10			10			10			10
Weather									S—F			SW—F

AUGUST 31

1 2 3 4 5 6 7 8 9 10 11 12

Global SW	23.7	25.8	22.3	13.3	11.9	7.7	2.8	2.1	0	0	0	0
Reflected SW	18.1	19.5	16.6	10.5	9.8	7.0	2.8	2.1	0	0	0	0
Net Radiation	4.9	5.6	4.9	2.8	2.1	2.1	0.7	0	0	0	0	0
Temp °C			-2.0			-1.8			-1.6			-2.1
Tenths Cloudiness			10			10			10			10
Weather			SW--									

13 14 15 16 17 18 19 20 21 22 23 24

[illegible]

STATION CLIMATOLOGY

MILLIWATTS/CM²

SEPTEMBER 1

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	23.0	21.0	16.7	11.9	11.9	7.7	4.2	0.7	0.7	0.7	0	0
Reflected SW	19.5	16.7	13.3	10.5	10.5	6.3	2.8	0.7	0.7	0.7	0	0
Net Radiation	5.6	5.6	3.5	2.8	2.8	1.4	0	0	-	-	-	-
Temp °C			-3.0			-2.3			-2.1			-1.6
Tenths Cloudiness			10			10			10			10
Weather									ZR--			E--

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	0.7	0.7	2.1	2.8	7.0	9.8	-	-	-	-	-	-
Reflected SW	0.7	0.7	-	-	-	-	-	-	-	-	-	-
Net Radiation	0	0	0.7	1.4	2.1	2.8	2.1	2.8	2.1	-	-	-
Temp °C			-1.6			-1.1			-0.4			-0.2
Tenths Cloudiness			10			10			10			10
Weather												

SEPTEMBER 2

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	16.0	16.7	16.7	11.9	7.7	4.2	0.7	0.7	0	0	0	0
Reflected SW	12.6	13.3	13.3	7.0	5.6	2.8	0.7	0.7	0	0	0	0
Net Radiation	4.2	4.2	5.6	3.5	2.1	0.7	0	0	0	0	0	0
Temp °C			-1.2			-1.8			-2.7			-2.8
Tenths Cloudiness			10			10			10			10
Weather						ZL--			ZL--			F

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	0	0	0	0	4.2	7.0	14.0	20.2	23.7	27.9	30.0	21.6
Reflected SW	0	0	0	0.7	2.1	-	11.2	16.7	19.5	20.9	22.3	18.1
Net Radiation	-0.7	0	-0.7	0	0	+0.7	0	1.4	4.9	6.3	7.0	6.3
Temp °C			-3.5			-0.3			-4.9			-4.8
Tenths Cloudiness			10			0			0			10
Weather			S--F			F			F			3W-F

STATION CHARLEY RADIATION

SEPTEMBER 3

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	21.6	20.2	18.8	14.7	11.9	11.9	4.9	0.7	0.7	0	0	0.
Reflected SW	16.7	16.0	14.0	12.6	9.8	6.3	2.8	0.7	0.7	0	0	0.
Net Radiation	6.3	5.6	3.5	2.8	0.7	-2.1	-1.4	-1.4	-3.5	-6.3	-7.0	-7.7
Temp °C			-4.3			-6.1			-7.8			-9.7
Tenths Cloudiness			10			8			7			1
Weather			SW--F									

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	0	0	0.7	4.2	7.0	11.2	14.7	18.1	27.2	20.2	23.7	21.6
Reflected SW	0.7	0.7	0.7	2.8	6.3	9.8	13.3	14.0	22.3	16.0	19.5	18.1
Net Radiation	-7.0	-7.0	-6.3	-5.6	-6.3	-6.3	-2.8	-0.7	0	4.9	5.6	5.6
Temp °C			-9.5			-8.1			-7.1			-3.7
Tenths Cloudiness			3			4			4			10
Weather												SW--F

SEPTEMBER 4

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	23.0	18.8	18.8	11.9	6.3	6.3	2.1	0	0.7	0	0.7	0
Reflected SW	18.1	16.0	15.3	10.5	6.3	4.9	2.1	0	0.7	0	0	0
Net Radiation	5.6	3.5	3.5	2.1	0.7	0	0	-0.7	-0.7	0	-0.7	-0.7
Temp °C			-2.3			-1.7			-2.3	-0.7		-3.9
Tenths Cloudiness			10			10			10			10
Weather												SW--

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	0	0.7	0.7	2.1	7.0	7.7	7.7	14.0	28.0	18.8	23.7	23.0
Reflected SW	0	0.7	0.7	0.7	5.6	6.3	6.3	12.6	18.1	15.3	19.5	18.1
Net Radiation	-1.4	-1.4	-0.7	-4.9	-2.1	0.7	0	2.8	5.6	2.8	3.5	3.5
Temp °C			-5.4			-7.0			-4.8			-4.0
Tenths Cloudiness			9			10			10			10
Weather			SW--F			SW--F			SW--			

STATION CHARLEY RADIATION

SEPTEMBER 5

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	18.1	16.7	14.0	9.1	9.1	4.9	2.1	2.1	0.7	0.7	0.7	0
Reflected SW	15.3	14.0	12.6	7.7	7.7	4.9	2.1	2.1	0.7	0.7	0.7	0
Net Radiation	2.8	2.8	2.1	0.7	0.7	0.7	0	0	0	0	0	-0.7
Temp °C			-3.8			-4.4			-5.3			-5.7
Tenths Cloudiness			10			10			10			10
Weather			SW--			SW--			SW--			

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	0	0	0.7	2.1	4.9	14.7	--	32.1	34.9	32.1	25.1	22.3
Reflected SW	0	0	0.7	0.7	3.5	13.3	--	25.1	27.2	24.4	20.9	18.8
Net Radiation	-0.7	-2.8	-1.4	-1.4	-1.4	-6.3	-8.4	-3.5	-0.7	1.4	6.3	5.6
Temp °C			-6.6			-6.7			-7.6			-6.2
Tenths Cloudiness			10			18			5			10
Weather			SW--F			SW--F						SW--F

SEPTEMBER 6

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	25.1	23.7	20.2	--	18.8	14.0	6.3	2.1	0	0	0	0
Reflected SW	20.9	18.8	15.3	16.0	12.6	6.3	2.8	0.7	0	0	0	0
Net Radiation	5.6	4.9	2.8	0	0.7	-2.8	-5.6	-6.3	-7.0	-6.3	-6.3	-6.3
Temp °C			-6.2			-7.8			-9.6			-10.7
Tenths Cloudiness			8			3			2			1
Weather			F									

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	0	0	0	--	--	--	--	--	16.0	21.6	25.1	25.8
Reflected SW	0	0	0	--	--	--	--	--	14.0	18.8	20.9	21.6
Net Radiation	-6.3	-6.3	-5.6	-4.9	-5.6	0	-0.7	2.8	3.5	4.9	6.3	6.3
Temp °C			-12.1			-9.9			-7.6			-6.2
Tenths Cloudiness			3			8			10			10
Weather									F			

STATION CHARLEY RADIATION

SEPTEMBER 7

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	23.0	20.2	16.7	14.7	9.1	4.9	2.1	0.7	0	0	0	0
Reflected SW	18.8	16.0	14.0	11.2	7.7	4.9	2.1	0.7	0	0	0	0
Net Radiation	5.6	3.5	1.4	0.7	0.7	0	0	0	-0.7	-4.9	7.0	-6.3
Temp °C			-5.4			-5.3			-7.4			-11.5
Tenths Cloudiness			10			10			10			1
Weather			F			F			F			

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SEPTEMBER 8

[illegible][illegible]

STATION CHARLEY RADIATION

SEPTEMBER 9

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	14.7	14.0	11.9	9.1	4.9	2.1	0.7	0	0	0	0	0
Reflected SW	12.6	11.2	9.8	6.3	3.5	2.1	0.7	0	0	0	0	0
Net Radiation	0.7	1.4	0.7	0	0	0	0	0	0	-0.7	0	0
Temp °C			-2.7			-3.0			-3.1			-5.1
Tenths Cloudiness			10			10			10			10
Weather												SW--F

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	0	0	0	0	0.7	4.9	9.8	20.2	25.8	28.6	--	--
Reflected SW	0	0	0	0	0.7	3.5	8.4	15.3	20.9	22.3	--	--
Net Radiation	-0.7	-0.7	-2.1	-2.8	-3.5	-0.7	-1.4	-1.4	0	0	0.7	-0.7
Temp °C			-7.6			-7.9			-7.3			-6.4
Tenths Cloudiness			10			8			8			8
Weather			SW--F			F			F			F

SEPTEMBER 10

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	37.0	39.8	30.0	25.8	18.1	4.9	0.7	0	0.7	0	0	0
Reflected SW	28.6	24.4	16.7	18.1	8.4	2.8	0.7	0	0.7	0	0	0
Net Radiation	-2.8	-3.5	-2.1	-2.8	-3.5	-1.4	0	-0.7	0	-3.5	-2.1	-3.5
Temp °C			-6.8			-9.0			-6.4			-8.7
Tenths Cloudiness			8			9			10			10
Weather						F			F			

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	0.7	0.7	0.7	0.7	--	--	--	11.2	11.9	14.7	20.9	30.0
Reflected SW	0.7	0.7	0.7	0.7	--	--	--	--	10.5	12.6	16.0	26.5
Net Radiation	0	0	0	0	0	0	1.4	2.1	2.1	2.8	3.5	3.5
Temp °C			-4.8			-3.9			-2.9			-3.8
Tenths Cloudiness			10			10			10			8
Weather			SW--			SW--			SW--			SW--

STATION CHARLEY RADIATION

SEPTEMBER 11

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	--	20.2	--	11.2	7.0	2.8	0.7	0	0.7	0.7	0.7	0
Reflected SW	18.8	16.7	--	8.4	6.3	0.7	0.7	0	0.7	0.7	0.7	0
Net Radiation	2.8	3.5	--	1.4	0.7	0	0	0	0	0	0	-0.7
Temp °C			-3.8			-2.1			-1.1			-1.1
Tenths Cloudiness			10			10			10			10
Weather			SW--			SW--			SW--F			SW--f

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	0	0.7	0	0.7	0.7	4.2	7.0	9.8	13.3	16.0	18.0	16.7
Reflected SW	0	0.7	0	0.7	0.7	3.5	5.6	8.4	9.8	13.3	15.3	14.0
Net Radiation	-0.7	0	-0.7	0	0	0	0.7	1.4	2.8	3.5	3.5	3.5
Temp °C			-1.2			-1.4			0.1			-0.9
Tenths Cloudiness			10			10			10			10
Weather			SW--F			SW--F			L--F			ZL--F

SEPTEMBER 12

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	18.8	16.0	14.0	7.7	4.9	2.8	0.7	0	0	0	0	0
Reflected SW	15.3	13.3	11.2	6.3	3.5	2.1	0	0	0	0	0	0
Net Radiation	3.5	3.5	3.5	1.4	.7	0	0	0	-4.9	-6.3	-7.0	-7.0
Temp °C			-0.6			0.3			0.4			0.7
Tenths Cloudiness			10			10			10			10
Weather			ZL--F			L--F			R--F			R-S-

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	0	0	0	0	0.7	2.8	7.0	7.7	7.7	11.2	11.9	14.0
Reflected SW	0	0	0	0	0.7	2.1	5.6	6.3	5.6	8.4	8.4	10.5
Net Radiation	-2.8	-2.1	-.7	-1.4	0	0	1.4	1.4	-2.1	1.4	4.9	4.9
Temp °C			0.2			0.2			0.3			0.6
Tenths Cloudiness			10			10			10			10
Weather			SF			L--F			R--F			L--F

STATION CHARLEY RADIATION

SEPTEMBER 13

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	11.9	11.2	9.1	7.0	2.8	0.7	0	0	0	0	0	0
Reflected SW	8.4	7.7	5.6	4.9	2.1	0	0	0	0	0	0	0
Net Radiation	4.9	3.5	2.8	2.1	0.7	0.7	0	0	0	0	0	0
Temp °C			0.0			-0.4			-0.4			-0.3
Tenths Cloudiness			10			10			10			10
Weather			L--F			F			SW--			SW--

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	0	0	0	0	0.7	2.8	7.0	14.0	18.1	21.6	27.9	27.9
Reflected SW	0	0	0	0	0.7	2.1	4.9	12.6	16.0	16.7	20.9	19.5
Net Radiation	0	-0.7	0	0	0	0	0	-1.4	-0.7	0	-0.7	1.4
Temp °C			-0.9			-1.2			-2.0			-1.7
Tenths Cloudiness			10			10			8			7
Weather			SW--F			ZL--F			F			F

SEPTEMBER 14

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	25.8	23.9	20.9	14.0	9.1	2.8	0.7	0.7	0	0.7	0	0
Reflected SW	18.1	16.7	14.0	7.7	4.9	2.1	0	0.7	0	0.7	0	0
Net Radiation	1.4	-2.1	-2.1	-4.9	-3.5	-4.9	-3.5	-5.6	-3.5	-2.1	-2.1	-2.1
Temp °C			-1.7			-2.9			-3.8			-3.1
Tenths Cloudiness			6			6			10			9
Weather			F			F			SW--			SW--

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	0	0	0	0	0.7	2.8	4.9	6.3	9.8	11.2	14.7	14.0
Reflected SW	0	0	0	0	0.7	1.4	3.5	4.9	7.7	8.4	12.6	11.2
Net Radiation	-0.7	-0.7	-0.7	-0.7	-0.7	0	0	0.7	1.4	1.4	2.1	2.1
Temp °C			-2.3			-2.2			-2.2			-1.1
Tenths Cloudiness			10			10			10			10
Weather						SW--			SW--			S-F-

STATION CHARLEY RADIATION

SEPTEMBER 15

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	11.9	11.2	9.1	7.0	4.2	2.1	0	0	0	0	0	0
Reflected SW	-	-	-	-	-	0.7	0	0	0	0	0	0
Net Radiation	1.4	1.4	0.7	0	0	0	-0.7	0	0	0	0	0
Temp °C			-1.9			-2.3			-2.8			-3.2
Tenths Cloudiness			10			10			10			10
Weather			S-F			S-F			S-F			S-
Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	0	0	0	0	--	--	--	9.1	13.3	14.7	18.1	16.0
Reflected SW	0	0	0	0	--	--	--	7.7	10.5	13.3	14.0	14.0
Net Radiation	-0.7	-0.7	-0.7	-0.7	-1.4	-0.7	-0.7	0	0	0	0	-0.7
Temp °C			-3.9			-4.2			-4.1			-4.3
Tenths Cloudiness			10			9			8			7
Weather			SW--F									

SEPTEMBER 16

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	--	20.2	21.6	16.7	4.9	2.1	0	0	0	0	0	0
Reflected SW	--	15.3	16.0	10.7	3.5	0.7	0	0	0	0	0	0
Net Radiation	-8.4	-9.8	-11.2	--	-2.8	-4.9	-5.6	-7.7	-11.9	-7.0	-7.7	-7.0
Temp °C			-7.7			-10.3			-11.0			-12.2
Tenths Cloudiness			4			4			6			6
Weather			F						F			
Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	0	0	0	0	0.7	0.7	4.9	7.0	9.8	13.3	14.0	10.8
Reflected SW	0	0	0	0	0.7	0.7	4.9	6.3	8.4	10.5	7.7	14.0
Net Radiation	-6.3	-4.9	-2.8	-2.8	0	-1.4	-0.7	0	0.7	0.7	0.7	0.7
Temp °C			-9.8			-8.1			-6.8			-5.4
Tenths Cloudiness			7			9			10			10
Weather									F			F

STATION CHARLEY RADIATION

SEPTEMBER 17

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	14.7	13.3	11.2	7.7	2.8	2.1	0	0	0	0	0	0
Reflected SW	11.2	10.5	8.4	6.3	2.1	2.1	0	0	0	0	0	0
Net Radiation	0.7	0.7	-0.7	-1.4	-1.4	-3.5	-2.1	-2.1	-1.4	-0.7	-0.7	-1.4
Temp °C			-7.3			-8.9			-10.3			-8.9
Tenths Cloudiness			9			8			10			10
Weather												F

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	0	0	0	0	0	--	--	9.1	11.2	18.1	14.0	14.7
Reflected SW	0	0	0	0	0	--	--	7.7	8.4	13.3	12.6	13.3
Net Radiation	-2.1	-2.8	-2.1	-1.4	-3.5	-1.4	0	0.7	0.7	1.4	0	0.7
Temp °C			-9.2			-9.8			-8.8			-8.2
Tenths Cloudiness			10			8			9			10
Weather												S-F

SEPTEMBER 18

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	16.7	18.8	14.0	7.0	4.2	0.7	0	0	0	0	0	0
Reflected SW	14.0	16.0	12.6	5.6	2.8	0.7	0	0	0	0	0	0
Net Radiation	1.4	0.7	-0.7	0.7	0	0	0	0	0	0	0	0
Temp °C			-8.3			-9.8			-10.0			-8.9
Tenths Cloudiness			9			10			10			10
Weather			S--			S-			S-BS			S-BS

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	0	0	0	0	0	0.7	2.1	4.9	7.7	9.8	11.9	13.3
Reflected SW	0	0	0	0	0	0.7	2.1	4.9	6.3	8.4	9.8	10.5
Net Radiation	0	0	0	0	0	0	0	0.7	1.4	2.1	2.8	3.5
Temp °C			-8.3			-7.3			-6.7			-5.4
Tenths Cloudiness			10			10			10			10
Weather			S-BS			S-FBS			S-FBS			BSF

STATION CHARLEY RADIATION

SEPTEMBER 19

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	16.7	13.3	11.2	6.3	2.8	0.7	0.7	0.7	--	--	0	0
Reflected SW	14.0	10.5	9.8	5.6	2.8	0.7	0.7	0.7	--	--	0	0
Net Radiation	2.8	2.8	2.8	1.4	0.7	0	0	0	0	0	-0.7	-0.7
Temp °C			-3.9			-2.2			-3.8			-3.3
Tenths Cloudiness			10			10			10			10
Weather			BSF			F			S--			S-

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SEPTEMBER 20

[illegible][illegible]

STATION CHARLEY RADIATION

SEPTEMBER 21

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	14.7	--	--	7.7	4.2	2.8	0.7	0	--	0	--	0
Reflected SW	12.6	--	--	6.3	2.8	2.8	0.7	0	--	0	--	0
Net Radiation	--	--	--	0	0	0	-0.7	-2.1	-4.9	-4.9	-4.9	-5.6
Temp °C			-9.6			-10.6			-13.8			-16.2
Tenths Cloudiness			9			9			7			4
Weather						8--			8--			

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	0	--	--	--	--	--	--	7.0	11.2	18.8	25.1	30.7
Reflected SW	0	--	--	--	--	--	--	6.3	10.5	13.3	18.1	20.9
Net Radiation	-2.8	-0.7	0	0	0	0	-0.7	0	0	-4.2	-2.8	-1.4
Temp °C			-13.4			-11.8			-12.1			-12.9
Tenths Cloudiness			10			8			7			3
Weather			SW--			SW--						

SEPTEMBER 22

[illegible][illegible]

STATION CHARLEY RADIATION

SEPTEMBER 23

[illegible][illegible]

SEPTEMBER 24

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	9.8	9.1	7.7	2.6	0.7	0	0	0	0	0	0	0
Reflected SW	8.4	7.7	5.6	2.8	0.7	1.0	0	0	0	0	0	0
Net Radiation	0	-1.4	0	-0.7	-0.7	-1.4	-1.4	-1.4	-1.4	0	0	0
Temp °C			-7.8			-6.8			-6.7			-7.8
Tenths Cloudiness			10			10			10			10
Weather						S--			S--			

[illegible]

STATION CHARLEY RADIATION

SEPTEMBER 25

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	11.9	9.8	7.0	4.2	2.1	0.7	--	--	0	--	0	0
Reflected SW	9.8	7.7	5.6	3.5	2.1	0.7	--	--	0	--	--	0
Net Radiation	0.7	0.7	0	-0.7	-0.7	-0.7	-0.7	-0.7	-1.4	-0.7	-3.5	-7.0
Temp °C			-8.3			-7.9			-7.7			-10.1
Tenths Cloudiness			10			10			10			2
Weather			8--									

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	0	0	0	0	0.7	2.1	7.7	--	11.9	16.0	30.0	30.7
Reflected SW	0	0	0	0	0.7	2.1	6.3	10.5	9.8	12.6	18.1	18.8
Net Radiation	-6.3	-7.0	-6.3	-6.3	-6.3	-6.3	-7.7	-7.7	-2.8	-2.8	-7.7	-7.7
Temp °C			-12.7			-13.3			-13.1			-13.9
Tenths Cloudiness			2			3			8			4
Weather												

SEPTEMBER 26

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	18.8	--	18.8	9.1	2.1	0	0	0	0	0	0	0
Reflected SW	16.0	--	8.4	4.9	0	0	0	0	0	0	0	0
Net Radiation	-7.7	--	-6.3	-6.3	-7.0	-7.0	-6.3	-6.3	-6.3	-6.3	-6.3	-5.6
Temp °C			-14.4			-17.1			-18.4			-19.2
Tenths Cloudiness			2			3			3			1
Weather												

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	0	0	0	0	0	0	--	4.2	9.2	18.8	11.9	11.9
Reflected SW	0	0	0	0	0	0	--	2.8	6.3	16.7	11.2	9.8
Net Radiation	-6.3	-5.6	-5.6	-5.6	-5.6	-4.9	-2.1	0.7	1.4	6.3	1.4	0.7
Temp °C			-20.1			-20.6			-16.4			-13.4
Tenths Cloudiness			2			0			10			10
Weather						SW--F			SW--F			SW--F

STATION CHARLEY RADIATION

SEPTEMBER 27[illegible][illegible]

SEPTEMBER 28

[illegible][illegible]

STATION CHARLEY RADIATION

SEPTEMBER 29

[illegible][illegible]

SEPTEMBER 30

[illegible][illegible]

STATION CHARLEY RADIATION

OCTOBER 1

[illegible][illegible]

OCTOBER 2

[illegible][illegible]

STATION CHARLEY RADIATION

OCTOBER 3

[illegible]

OCTOBER 4

[illegible]

OCTOBER 5

OCTOBER 6

[illegible]

STATION CHARLEY RADIATION

OCTOBER 7

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	6.3	2.8	0.7	0.7	--	--	--	0	0	0	0	0
Reflected SW	4.9	2.1	0	0	0	0	0	0	0	0	0	0
Net Radiation												
Temp °C			-0.4			-1.1			-1.7			-1.4
Tenths Cloudiness			10			10			10			10
Weather			F			SE			S			S
Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	0	0	0	0	0	0	0	0	2.8	4.2	0.3	6.3
Reflected SW	0	0	0	0	0	0	0	0	2.1	2.8	3.5	4.9
Net Radiation												
Temp °C			-2.0			-5.4			-4.9			-3.7
Tenths Cloudiness			10			10			9			10
Weather			SSS			SSS			BS			BS

UCT 302 8

[illegible]

STATION CHARLEY RADIATION

OCTOBER 9

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	11.9	2.8	2.8	0	0	0	0	0	0	0	0	0
Reflected SW	8.4	0.7	2.1	0	0	0	0	0	0	0	0	0
Net Radiation												
Temp °C			-13.9			-11.3			-7.8			-5.2
Tenths Cloudiness			8			10			10			10
Weather												S-
Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	0	0	0	0	0	0	0	0.7	2.1	4.2	4.9	4.9
Reflected SW	0	0	0	0	0	0	0	0.7	2.1	3.5	4.9	4.9
Net Radiation												
Temp °C			-5.4			-6.8			-7.7			-8.0
Tenths Cloudiness			10			10			10			10
Weather			S-			S-			S-			S-

OCTOBER 10

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	7.3	4.2	2.8	2.1	0.7	0	0	0	0	0	0	0
Reflected SW	6.7	2.8	1.4	0.7	0.7	0	0	0	0	0	0	0
Net Radiation												
Temp °C			-8.6			-6.9			-13.1			-10.8
Tenths Cloudiness			10			10			10			5
Weather			S-						S-			
Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	0	0	0	0	0.7	0.7	0.7	2.1	2.1	4.9	6.3	6.3
Reflected SW	0	0	0	0	0	0	0	0.7	2.1	3.5	4.9	5.6
Net Radiation												
Temp °C			-10.7			-15.6			-10.4			-17.2
Tenths Cloudiness			10			10			10			10
Weather			S--			S--			F			F

STATION CHARLEY RADIATION

OCTOBER 11

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	4.2	2.1	2.1	0	0	0	0	0	0	0	0	0
Reflected SW	3.5	2.1	2.1	0	0	0	0	0	0	0	0	0
Net Radiation												
Temp °C		-14.4				-14.1			-16.1			-12.2
Tenths Cloudiness		10				10			10			10
Weather		S-F				S--						S--

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	0	0	0	0	0	0	0	0.7	2.1	4.9	4.9	4.9
Reflected SW	0	0	0	0	0	0	0	0.7	1.4	4.9	4.9	4.9
Net Radiation												
Temp °C		-11.6				-11.8			-12.5			-11.4
Tenths Cloudiness		10				10			10			10
Weather												

OCTOBER 12

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	4.9	2.8	0.7	0	0	0	0	0	0	0	0	0
Reflected SW	4.9	2.8	0.7	0	0	0	0	0	0	0	0	0
Net Radiation												
Temp °C		-17.9				-14.4			-12.8			-12.9
Tenths Cloudiness		5				10			10			6
Weather									S--			S--

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	0	0	0	0	0	0	0	0	2.1	2.8	4.2	4.2
Reflected SW	0	0	0	0	0	0	0	0	2.1	2.8	3.5	3.5
Net Radiation												
Temp °C		-14.7				-15.2			-14.3			-15.4
Tenths Cloudiness		4				10			10			3
Weather		S--				S-			S-			S-

STATION CHARLEY RADIATION

OCTOBER 13

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	2.8	0.7	0.7	--	--	--	--	--	--	--	--	--
Reflected SW	3.5	2.9	0.7	--	--	--	--	--	--	--	--	--
Net Radiation												
Temp °C			-19.9			-22.3			-22.2			-19.0
Tenths Cloudiness			2			2			1			6
Weather												S--

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	--	--	--	--	--	--	--	--	--	--	--	--
Reflected SW	--	--	--	--	--	--	--	--	--	--	--	--
Net Radiation												
Temp °C			-15.2			-14.4			-16.9			-15.0
Tenths Cloudiness			8			10			7			10
Weather			S--			S--						S--BS

OCTOBER 14

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	--	--	--	--	--	--	--	--	--	--	--	--
Reflected SW	--	--	--	--	--	--	--	--	--	--	--	--
Net Radiation												
Temp °C			-17.1			-16.1			-14.9			-16.6
Tenths Cloudiness			10			10			10			6
Weather						S-Bs			S-Bs			IC

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	--	--	--	--	--	--	--	--	--	--	--	--
Reflected SW	--	--	--	--	--	--	--	--	--	--	--	--
Net Radiation												
Temp °C			-14.3			-12.6			-13.7			-13.8
Tenths Cloudiness			10			5			10			10
Weather			IC			S--			BS			

STATION CHARLEY RADIATION

OCTOBER 15

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	4.2	4.2	0.7	0	0	0	0	0	0	0	0	0
Reflected SW	2.8	3.5	0.7	0	0	0	0	0	0	0	0	0
Net Radiation												
Temp °C			-14.7			-14.7			-15.2			-17.6
Tenths Cloudiness			10			7			10			10
Weather			F			BS			BS			BS
Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	0	0	0	0	0	0	0	0	0.7	2.1	2.8	2.8
Reflected SW	0	0	0	0	0	0.7	0	0	0.7	2.1	2.8	2.8
Net Radiation												
Temp °C			-16.5			-17.0			-10.6			-15.7
Tenths Cloudiness			10			10			10			10
Weather			S-			S			S			S-

OCTOBER 16

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	7.0	4.9	0.7	0	0	0	0	0	0	0	0	0
Reflected SW	5.6	3.5	0.7	0.7	0.7	--	--	0	0	0	0	0
Net Radiation												
Temp °C			-23.7			-26.9			-28.8			-30.8
Tenths Cloudiness			0			0			0			0
Weather						.						
Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	0	0	0	0	0	0	0	0	0.7	2.8	6.3	2.8
Reflected SW	0	0	0	0	0	0	0.7	0.7	2.1	2.8	4.9	2.8
Net Radiation												
Temp °C			-32.1			-31.3			-29.2			-27.1
Tenths Cloudiness			0			0			4			7
Weather						BS			BS			BS

STATION CHARLEY RADIATION

OCTOBER 17

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	2.1	0.7	0	0.7	0	0	0	0	0	0	0	0
Reflected SW	2.1	0.7	0	0.7	0	0	0	0	0	0	0	0
Net Radiation												
Temp °C			-26.0			-25.7			-26.7			-26.1
Tenths Cloudiness			10			10			0			6
Weather			BS			BS			BS			BS

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	0	0	0	0	0	0	0	0	0.7	2.1	2.1	2.1
Reflected SW	0	0	0	0	0	0	0	0	0.7	2.1	2.8	2.8
Net Radiation												
Temp °C			-25.8			-24.4			-22.7			-21.9
Tenths Cloudiness			10			5			10			10
Weather			BS			BS						F

OCTOBER 18

[illegible][illegible]

STATION CHARLEY RADIATION

OCTOBER 19

[illegible][illegible]

OCTOBER 20

[illegible][illegible]

STATION CHARLEY RADIATION

OCTOBER 21

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	2.8	0.7	0.7	0	0	0	0	0	0	0	0	0
Reflected SW	2.1	0.7	0	0	0	0	0	0	0	0	0	0
Net Radiation												
Temp °C			-19.2			-18.3			-18.6			-18.4
Tenths Cloudiness			10			10			10			10
Weather			F			BS			BS			BS

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	0	0	0	0	0	0	--	--	--	--	--	1.4
Reflected SW	0	0	0	0	0	0	0	0	0	0	0	0.7
Net Radiation												
Temp °C			-18.6			-14.7			-13.9			-15.0
Tenths Cloudiness			7			10			10			5
Weather			BS			BS			BS			S-

OCTOBER 22

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	2.1	0.7	0	0	0	0	0	0	0	0	0	0
Reflected SW	0.7	0	0	0	0	0	0	0	0	0	0	0
Net Radiation												
Temp °C			-18.2			-17.7			-18.7			-18.2
Tenths Cloudiness			4			10			10			10
Weather									S-			S-

Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	0	0	0	0	0	0	0	0.7	0.7	0.7	2.1	2.1
Reflected SW	0	0	0	0	0	0	0	0	0	0	0.7	0.7
Net Radiation												
Temp °C			-17.8			-17.6			-17.7			-18.8
Tenths Cloudiness			10			10			10			10
Weather			S-			S-			S-			S-

STATION CHARLEY RADIATION

OCTOBER 23

Hour Ending at (GMT)	1	2	3	4	5	6	7	8	9	10	11	12
Global SW	END OF SW RADIATION DATA											
Reflected SW												
Net Radiation												
Temp °C			-18.8			-27.1			-24.6			-22.8
Tenths Cloudiness			4			5			3			9
Weather												
Hour Ending at (GMT)	13	14	15	16	17	18	19	20	21	22	23	24
Global SW	-											
Reflected SW												
Net Radiation												
Temp °C			-25.8			-27.2			-23.6			-17.3
Tenths Cloudiness			2			0			7			10
Weather												

AUGUST 1959

STATION CHARLIE RADIATION SUMMARY

Hr. End. at (GMT)	MONTHLY SUMS FOR EACH HOUR *			HOURLY MEANS			
	Global SW Joules/ CM ²	Ref1. SW Joules/ CM ²	Net Joules/ CM ²	Global SW MW/CM ²	Ref1. SW MW/CM ²	Net MW/CM ²	Albedo
1	2502	1906	546	35.7	26.0	7.2	.73
2	2220	1743	460	30.8	23.1	6.1	.75
3	2034	1462	418	26.9	19.2	5.5	.72
4	1743	1211	347	23.1	16.0	4.6	.69
5	1276	932	223	16.9	12.3	2.9	.73
6	895	641	100	12.4	8.9	1.4	.72
7	605	450	23	8.4	6.3	0.3	.75
8	357	342	-55	5.2	5.0	-0.8	.96
9	269	264	-103	3.7	3.9	-1.4	--
10	238	201	-128	3.3	2.9	-1.8	.88
11	191	168	-131	2.8	2.6	-1.9	.93
12	158	136	-116	2.3	2.1	-1.7	.91
13	196	168	-73	2.9	2.6	-1.1	.90
14	213	201	-53	3.3	3.1	-0.8	.94
15	193	208	-10	3.6	3.6	-0.1	1.00
16	244	317	-8	4.8	5.5	-0.1	--
17	420	498	55	9.7	8.6	0.9	.89
18	595	619	116	12.7	10.7	1.8	.84
19	1138	837	193	21.0	14.5	3.0	.69
20	1706	1279	355	24.9	19.7	4.9	.79
21	2331	1703	450	30.8	23.7	5.7	.77
22	2613	1929	516	34.6	25.5	6.5	.74
23	2718	1957	596	39.7	28.6	8.3	.72
24	2773	2048	571	36.7	27.1	7.2	.74

AUGUST 1959

STATION CHARLIE RADIATION SUMMARY

DAILY SUMS *

<u>Day</u>	<u>Global SW Joules/CM²</u>	<u>Reflected SW Joules/CM²</u>	<u>Net Joules/CM²</u>
1			
2			
3			
4			
5			
6			
7			
8			
9			
10	1688	1241	345
11	1183	496	307
12	1379	985	493
13	1432	998	213
14	1645	1347	118
15	2014	1332	-68
16	2160	1565	143
17	1091	882	301
18	1269	937	171
19	1392	1342	108
20	1635	1324	95
21	1020	814	153
22	1234	1040	208
23	1326	1176	231
24	1434	1286	166
25	370	322	110
26	423	310	83
27	1562	1093	216
28	1096	814	108
29	736	661	173
30	794	676	143
31	747	583	171
TOTAL	27,630	21,223	5,025

SEPTEMBER 1959

STATION CHARLIE RADIATION SUMMARY

MONTHLY SUMS FOR EACH HOUR *				HOURLY MEANS			
Br. End. at (GMT)	Global SW Joules/ CM ²	Ref. SW Joules/ CM ²	Net Joules/ CM ²	Global SW MW/CM ²	Ref. SW MW/CM ²	Net MW/CM ²	Albedo
1	1844	1429	126	19.0	14.7	1.3	.77
2	1771	1321	108	17.6	13.6	1.1	.77
3	1414	1042	20	14.0	10.7	0.2	.76
4	1015	772	-12	9.7	7.4	-0.1	.76
5	643	458	-73	6.0	4.4	-0.7	.73
6	312	213	-166	3.0	2.0	-1.5	.67
7	103	73	-181	1.0	0.7	-1.7	.70
8	30	25	-203	0.3	0.3	-1.9	1.00
9	15	15	-281	0.2	0.2	-2.7	1.00
10	10	10	-306	0.1	0.1	-2.9	1.00
11	8	5	-312	0	0.1	-2.9	--
12	0	0	-327	0	0	-3.1	--
13	5	8	-249	0	0.1	-2.3	--
14	10	13	-233	0.1	0.1	-2.2	1.00
15	18	10	-211	0.2	0.1	-2.0	.05
16	53	23	-241	0.6	0.3	-2.2	.05
17	126	85	-259	1.6	1.0	-2.4	.63
18	279	181	-234	4.1	2.6	-2.2	.63
19	388	373	-173	7.2	5.8	-1.7	.81
20	975	744	-70	10.8	8.6	-0.7	.80
21	1417	1151	0	14.6	11.8	0	.81
22	1701	1367	88	17.5	14.1	0.9	.81
23	1997	1537	126	19.8	15.2	1.2	.77
24	1970	1515	123	19.5	15.0	1.2	.77

SEPTEMBER 1959
STATION CHARLIE RADIATION SUMMARY

DAILY SUMS *

Day	Global SW Joules/cm ²	Reflected SW Joules/cm ²	Net Joules/cm ²
1	440	299	153
2	812	603	163
3	915	734	-131
4	782	641	73
5	890	732	-15
6	716	609	-115
7	940	667	-213
8	611	513	-53
9	531	423	-40
10	895	609	-38
11	473	453	78
12	460	357	-28
13	586	440	45
14	583	415	-108
15	413	216	-13
16	486	357	-360
17	428	352	-85
18	403	340	45
19	395	345	-70
20	193	178	-18
21	443	340	-128
22	870	541	-435
23	596	458	-156
24	286	226	-80
25	486	390	-321
26	378	274	-347
27	279	183	-239
28	283	244	-63
29	276	231	-68
30	266	211	-352
TOTAL	16,115	12,381	-2,394

OCTOBER 1959

STATION CHARLIE RADIATION SUMMARY

MONTHLY SUMS FOR EACH HOUR *

HOURLY MEANS

Hr. End. at (GMT)	Global SW Joules/cm ²	Refl. SW Joules/cm ²	Net Joules/cm ²	Global SW MW/cm ²	Refl. SW MW/cm ²	Net MW/cm ²	Albedo
1	533	390	-8	7.1	5.2	-0.7	.73
2	312	231	-18	4.1	3.1	-1.7	.76
3	143	108	-10	1.9	1.4	-0.9	.74
4	42	35	-10	0.6	0.5	-0.9	.83
5	8	8	-23	0.1	0.1	-2.1	1.00
6	0	0	-30	0	0	-2.8	--
7	0	0	-28	0	0	-2.6	--
8	0	0	-20	0	0	-1.9	--
9	0	0	-28	0	0	-2.6	--
10	0	0	-33	0	0	-3.1	--
11	0	0	-33	0	0	-3.1	--
12	0	0	-23	0	0	-2.1	--
13	0	0	-25	0	0	-2.3	--
14	0	0	-13	0	0	-1.2	--
15	0	0	-15	0	0	-1.4	--
16	0	0	-28	0	0	-2.6	--
17	5	0	-30	0.1	0	-2.8	--
18	5	3	-33	0.1	0	-3.1	--
19	15	18	-30	0.3	0.3	-2.8	1.00
20	78	82	-35	1.3	1.3	-4.9	1.00
21	188	191	-40	2.5	2.9	-5.6	--
22	370	335	-25	5.7	4.9	-3.5	.86
23	408	352	-5	6.3	5.1	-0.7	.81
24	408	327	-3	6.0	4.8	-0.4	.80

OCTOBER 1959

STATION CHARLIE RADIATION SUMMARY

DAILY SUMS *

Day	Global SW Joules/CM ²	Reflected SW Joules/CM ²	Net Joules/CM ²
1	309	286	-355
2	345	271	-168
3	228	193	-20
4	158	128	
5	156	103	
6	143	93	
7	103	73	
8	143	103	
9	123	98	
10	151	103	
11	93	88	
12	78	73	
13	15	23	
14	—	—	
15	63	58	
16	90	90	
17	38	43	
18	98	70	
19	73	43	
20	50	30	
21	20	13	
22	33	8	
23			
24	SUNDOWN		
25			
26			
27			
28			
29			
30			
31			
TOTAL	2,515	2,078	-543

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